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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/030,682 | 01/14/2002 | Hiromoto Ohno | Q60714 | 8394 |

7590 02/03/2004

Sughrue Mion
2100 Pennsylvania Avenue NW
Washington, DC 20037-3213

EXAMINER

LANGEL, WAYNE A

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| ART UNIT | PAPER NUMBER |
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1754

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030682

Applicant(s)

Ohno et al

Examiner

Langel

Group Art Unit

1754

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—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-13 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1, 2, 3 and 4-13 is/are rejected.
- ☒ Claim(s) 3 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Coronell et al. or Aramaki et al. or Woytek et al. or Japanese 2255513A. No distinction is seen between the nitrogen trifluoride product of the processes disclosed by Coronell et al. or Aramaki et al. or Woytek et al. or Japanese 2255513A and that which would be produced by the process recited in applicant's claim 1. Regarding claims 12 and 13, the nitrogen trifluoride gas produced according to the processes of Coronell

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et al., Aramaki et al., Woytek et al. and Japanese 2255513A are considered to constitute an "etching gas" or "cleaning gas".

Claims 1 and 7/1 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Japanese 2255513. No distinction is seen between the process disclosed by Japanese 2255513, and that recited in applicant's claims 1 and 7/1. Japanese 2255513 discloses a method for producing nitrogen trifluoride by bringing fluorine gas and ammonia gas into contact at a temperature of 80°C and in the presence of a diluting gas which may constitute hexafluoroethane.

Claims 2, 4-6, 7/2 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese 2255513. The limitations recited in these claims would be prima facie obvious over Japanese 2255513, since one of ordinary skill in the art would be motivated to determine suitable conditions and to use routine process steps to carry out the process. Regarding claim 2, it would be prima facie obvious to carry out the process of Japanese 2255513 at a temperature of 50°C. The English Abstract of Japanese 2255513 discloses that the heat medium is kept at a temperature of at least 80°C. There is nothing in Japanese 2255513 to suggest that the temperature of the reaction itself should not be at a temperature lower than 80°C.

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Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese 2255513 as applied to claim 1 above, and further in view of Japanese 55116624. It would be further obvious from Japanese 55116624 to treat the unreacted fluorine gas in the process of Japanese 2255513 with alumina to obtain aluminum fluoride, since Japanese 55116624 discloses the reaction between alumina and fluorine to obtain aluminum fluoride, and one of ordinary skill in the art would be motivated to avoid allowing the unreacted fluorine to go to waste in the process disclosed in Japanese 2255513.

Claims 1-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese 5105411. Japanese 5105411 discloses a method for producing nitrogen trifluoride by reacting ammonia and fluorine in the gaseous phase in the presence of a dilution gas. (See the English Abstract.) The difference between the process recited in applicant's claims, and that disclosed by Japanese 5105411, is that applicant's claims require that the reaction be formed at 80°C or less. It would be prima facie obvious to carry out the process of Japanese 5105411 at a temperature of 80°C or less, since it would be within the skill of one of ordinary skill in the art to determine a suitable or optimum temperature at which to carry out the process. Regarding claim 3, it would also be within the skill of one of ordinary skill in the art to

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determine a suitable or optimum molar ratio of fluorine gas to ammonia gas to employ in the process of Japanese 5105411.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese 5105411 as applied to claim 1 above, and further in view of Japanese 55116624. It would be further obvious from Japanese 55116624 to treat the unreacted fluorine gas in the process of Japanese 5105411 with alumina to obtain aluminum fluoride, since Japanese 55116624 discloses the reaction between alumina and fluorine to obtain aluminum fluoride, and one of ordinary skill in the art would be motivated to avoid allowing the unreacted fluorine to go to waste in the process disclosed in Japanese 5105411.

The other references are made of record for disclosing various methods for producing nitrogen trifluoride.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (571) 272-1353. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (571) 272-1358. The fax phone number for this Group is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-0994.

WAL:cdc

January 23, 2004

Wayne A. Langel
WAYNE A. LANGEL
PRIMARY EXAMINER